Amendments to the Claims

In accordance with 37 CFR 1.121 a Claim Listing is included and the status of each claim is indicated according to the seven permissible status identifiers, i.e. (Original), (Currently amended), (Cancelled), (Previously presented), (New), (Not entered), (Withdrawn). Amended claims use underline for additions and strike-through for deletions.

Claim Listing:

Claim 1. (Twice amended) A combination therapeutic and diagnostic radiopharmaceutical microparticle comprising a non-radioactive core made from a biocompatible polymer, at least one dendritic polymer linking carrier covalently bound to ~~on~~ said core, said dendritic polymer linking carrier having a terminal functional group, said terminal functional group attached to a chelated radiopharmaceutical agent, said chelated radiopharmaceutical agent is selected from the group consisting of a chelated beta-emitting therapeutic radionuclide and a chelated gamma-emitting diagnostic radionuclide ~~wherein said linking carrier comprises a biocompatible polymer, and at least two radioactive therapeutic agents covalently bonded to said linking carrier; wherein said microparticle has a diameter in the range of from 5 to 200 microns and said microparticle is non-biodegradable and is not water swellable, wherein the at least two radioactive therapeutic agents are selected from the group consisting of a therapeutic beta-emitting radionuclide and an imaging or diagnostic gamma-emitting radionuclide~~.

Claim 2-7. (Canceled).

Claim 8. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said therapeutic beta-emitting radionuclide is Yttrium-90.

Claim 9-10. (Canceled)

Claim 11. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said therapeutic beta-emitting radionuclide is Yttrium-90 and said imaging or diagnostic gamma-emitting radionuclide is selected from the group consisting of indium-111 and Tc-99m.

Claim 12. (Twice amended) The radiopharmaceutical microparticle of claim particle of claim 1, further comprising wherein said radioactive therapeutic agent is bonded to said linking carrier through one or more spacer groups.

Claim 13. (Twice amended) The radiopharmaceutical microparticle of claim particle of claim 1,

further comprising wherein said dendritic polymer linking carrier is a poly(amidoamine) dendrimer ~~radioactive therapeutic agent is bound to said linking carrier by a chelator group~~.

Claim 14. (Twice amended) The radiopharmaceutical microparticle of claim particle of claim 13, further comprising wherein said chelator group is at least one selected from the group consisting of cyclohexyldiethylenetriaminepentaac- etic acid ligand (CHX-DTPA), diethylenetriaminepentaacetic acid (DTPA), ethylenediaminetetraacetic acid (EDTA), 1,4,7,10-tetraazacyclododecane-N,- N',N,"N'"tetraacetate (DOTA), tetraazacyclotetradecane-N,N", N"N"-tetraacetic acid (TETA), cyclohexyl 1,2-diamine tetra-acetic acid (CDTA), ethyleneglycol-O,O'-bis(-2-aminoethyl)-N,N,N',N'-tetra-acetic acid (EGTA), N,N-bis(hydroxybenzyl)-e-thylenediamine-N,N'-diacetic acid (HBED), triethylene tetramine hexa-acetic acid (TTHA), hydroxyethyldiamine triacetic acid (HEDTA), hydroxyethylidene diphosphonate (HEDP), dimercaptosuccinic acid (DMSA), diethylenetriaminetetramethylenephosphonic acid (DTTP) and 1-(p-aminobenzyl)-DTPA, 1,6-diamino hexane-N,N,N',N'-tetraacetic acid, DPDP, and ethylenebis (oxyethylenenitrilo)-tetraacetic acid.

Claim 15. (Twice amended) The radiopharmaceutical microparticle of claim 13, further comprising wherein said therapeutic beta-emitting radionuclide is yttrium-90 and said chelator group is DOTA.

Claim 16. (Cancelled).

Claim 17. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said core comprises a polymer selected from the group consisting of polyacrylate, ethylene-vinyl acetate polymer, an acyl substituted cellulose acetate, polyurethane, polystyrene, polyvinylchloride, polyvinyl flouride, poly(vinyl imidazole), chlorosulphonate polyolefin, polyethylene oxide, blends thereof, and copolymers thereof, a polyphosphazine, a poly(vinyl alcohol), a polyamide, a polycarbonate, a polyalkylene, a polyacrylamide, a polyalkylene glycol, a polyalkylene oxide, a polyalkylene terephthalate, a polyvinyl ether, a polyvinyl ester, a polyvinyl halide, polyvinylpyrrolidone, a polyglycolide, a polysiloxane, and copolymers thereof, a alkyl cellulose, an hydroxyalkyl cellulose, a cellulose ether, a cellulose ester, and a nitrocellulose.

Claim 18. (Cancelled).

Claim 19. (Cancelled).

Claim 20. (Twice amended) The radiopharmaceutical microparticle of claim 1 ~~19~~, further comprising wherein said dendrimer has a disulfide bond in its core.

Claims 21 - 24. (Cancelled).

Claim 25. (Twice amended) The radiopharmaceutical microparticle of claim 1 ~~24~~, further

comprising wherein said functional group is at least one selected from the group consisting of ester group, ether group, thiol group, carbonyl group, hydroxyl group, amide group, carboxylic group, and imide group.

Claim 26. (Twice amended) The radiopharmaceutical microparticle of claim 1 ~~19~~, ~~comprising multiple dendrimers,~~ further comprising wherein said dendrimers are monodispersed.

Claim 27-28. (withdrawn as non-elected species).

Claim 29. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said particle does not leach radionuclide.

Claim 30. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said particle is spheroidal.

Claim 31. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said particle has a density in the range of from 1 to 4 gm/cm.sup.3.

Claim 32. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said particle has a density in the range of from 1 to 2 gm/cm.sup.3.

Claim 33. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said particle further comprises a second therapeutic agent or a diagnostic agent.

Claim 34. (Twice amended) The radiopharmaceutical microparticle of claim 33, further comprising wherein said second therapeutic agent or said diagnostic agent is at least one selected from the group consisting of a metal chelate complex, a drug, a prodrug, a radionuclide, a boron addend, a labeling compound, a toxin, a cytokine, a lymphokine, a chemokine, an immunomodulator, a radiosensitizer, an asparaginase, a radioactive halogens, a chemotherapy drug and a contrast agent.

Claim 35. (Twice amended) A particulate material for radiopharmaceutical use comprising microparticles having: a non-radioactive core made from a biocompatible polymer, at least one dendritic polymer linking carrier covalently bound to ~~on~~ said core, said dendritic polymer linking carrier having a terminal poly(amidoamine) functional group for attachment to a chelated radiopharmaceutical agent, said chelated radiopharmaceutical agent selected from the group consisting of a beta-emitting therapeutic radionuclide comprising DOTA-Yttrium-90 and a gamma-emitting diagnostic radionuclide consisting of DOTA-Indium-111 or DOTA-Technetium-99m wherein said linking carrier comprises a biocompatible polymer, and ~~at least two radioactive therapeutic agents covalently bonded to said linking carrier,~~ wherein said microparticle has a diameter in the range of from 5 to 200 microns ~~and said microparticle is non-biodegradable and is not water swellable, wherein the at least two radioactive therapeutic agents~~

~~are selected from the group consisting of a therapeutic beta-emitting radionuclide and an imaging or diagnostic gamma-emitting radionuclide.~~
~~at least one radioactive therapeutic agent covalently bonded to said linking carrier; wherein said microparticles have a diameter in the range of from 5 to 200 microns and said microparticles are non-biodegradable.~~

Claim 36. (Amended) The particulate material of claim 35, further comprising wherein said microparticles have a diameter in the range of from 8-100 microns.

Claim 37. (Amended) The particulate material of claim 35, further comprising wherein said microparticles have a diameter in the range of from 25-50 microns.

Claim 38. (Amended) The particulate material of claim 35, further comprising wherein said microparticles have a diameter in the range of from 20-30 microns.

Claim 39. (Amended) The particulate material of claim 35, further comprising wherein said microparticles have substantially equivalent particle sizes.

Claim 40. (Amended) The particulate material of claim 35, further comprising wherein said microparticles are sufficiently large so as to avoid phagocytosis.

Claim 41-71 (withdrawn as non-elected invention)

Claim 72-81. (canceled)

Claim 82-84 (withdrawn as non-elected invention).

85. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said microparticle has a diameter in the range of from about 8 to about 100 microns.

86. (Twice amended) The radiopharmaceutical microparticle of claim 1, further comprising wherein said microparticle has a diameter in the range of from about 20 to about 30 microns.

87. (New) The radiopharmaceutical microparticle of claim 1, further comprising wherein said radioactive therapeutic agent is at least one radionuclide selected from the group consisting of iridium, radium, cesium, phosphorus, yttrium, rhenium, actinium, bismuth, astatine, technetium, indium, iodine, and carbon, nitrogen, fluorine, sodium, magnesium, aluminum, silicon, potassium, vanadium, manganese, gallium, niobium, iodine, lead, Y-90, Bi-213, At-211, I-123, I-125, I-131, At-211, Cu-67, Sc-47, Ga-67, Rh-105, Pr-142, Nd-147, Pm-151, Sm-153, Ho-166, Gd-159, Th-161, Eu-152, Er-171, Re-186, Re-188, Tc-99m, In-111, Ga-67, Rh-105, I-123, Nd-147, Pm-151, Sm-153, Gd-159, Th-161, Er-171, Re-186, Re-188, and T1-201

88. (New) The radiopharmaceutical microparticle of claim 1, further comprising wherein said chelated radiopharmaceutical agent comprises a first radionuclide and a second radionuclide combined on the same microparticle construct, said first radionuclide comprising a chelated beta-emitting therapeutic radionuclide and said second radionuclide comprising a chelated gamma-emitting diagnostic radionuclide.

89. (New) The radiopharmaceutical microparticle of claim 88, further comprising wherein said chelated beta-emitting therapeutic radionuclide comprises Yttrium-90 and said second chelated gamma-emitting diagnostic radionuclide comprises Indium-111 or Technetium-99m.

90. (New) The radiopharmaceutical microparticle of claim 1, further comprising wherein the microparticle is formulated in a pharmaceutical composition in combination with a pharmaceutically acceptable excipient, adjuvant, or carrier.

91. (New) The radiopharmaceutical microparticle of claim 35, further comprising wherein the microparticle is formulated in a pharmaceutical composition in combination with a pharmaceutically acceptable excipient, adjuvant, or carrier.

92. (New) The radiopharmaceutical microparticle of claim 1, further comprising wherein the microparticle is formulated as a lyophilized preparation.

93. (New) The radiopharmaceutical microparticle of claim 35, further comprising wherein the microparticle is formulated as a lyophilized preparation.

94. (New) The radiopharmaceutical microparticle of claim 1, further comprising a spacer group between the dendritic polymer linking carrier and the chelated radiopharmaceutical agent.

95. (New) The radiopharmaceutical microparticle of claim 35, further comprising a spacer group between the dendritic polymer linking carrier and the chelated radiopharmaceutical agent.